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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/737,261	12/15/2003	Hiroshi Mizutani	NEM-01602	5810

7590 11/01/2005

Patent Group  
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53 State Street  
Boston, MA 02109-2804

EXAMINER
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LEE, EUGENE

ART UNIT	PAPER NUMBER
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2815

DATE MAILED: 11/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/737,261	MIZUTANI, HIROSHI	
	<b>Examiner</b>	<b>Art Unit</b>	
	Eugene Lee	2815	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 24 August 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 14-16 and 20-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 14-16, 20-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 December 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☒ Certified copies of the priority documents have been received in Application No. 09/372,322.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election without traverse of Species II (claims 14-16, and 20-27) in the reply filed on 8/24/05 is acknowledged.

### ***Drawings***

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, (1) the resistor (claim 16), and (2) said diode having a cathode electrode ... and an anode electrode (claim 25) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will

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be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### *Specification*

3. The disclosure is objected to because of the following informalities: on page 22, line 13, the word "cathode" is misspelled.

Appropriate correction is required.

### *Claim Objections*

4. Claims 23, and 24 are objected to because of the following informalities: the limitation "to has" should be "to have", and the word "ohmic" is misspelled. Appropriate correction is required.

### *Claim Rejections - 35 USC § 112*

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 25 thru 27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is not clear how the diode has a cathode electrode and an anode electrode as stated in the last two lines of claim 25. The specification describes the first coplanar transmission line, and the second coplanar transmission line having pairs of conductors, however, it does not

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describe the diode itself having a cathode electrode and an anode electrode (see, for example, Fig. 5).

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 20 thru 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Fleming 3,975,690. Fleming discloses (see, for example, FIG. 4) a device (semiconductor switch) comprising a semiconductor layer (active region) 12, center conductor (cathode electrode) 16, and ground plane metallization (first and second anode electrodes) 14. The ground plane metallization is coupled with ground (earth potential), and the center conductor contains a first and a second terminal wherein one of the terminals are coupled to  $V_{IN}$ . In column 7, lines 35-36, Fleming discloses the device may be a microwave switch.

Regarding claim 21, see, for example, column 10, lines 29-35 wherein Fleming discloses the preferable contact material being a contact metal (metal layer).

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Insofar as definite, claims 25 thru 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fleming '690 as applied to claims 20-24 above, and further in view of Geis et al. 5,825,240. Fleming does not disclose a first coplanar transmission line, a second coplanar transmission line, and a diode. However, Geis discloses (see, for example, FIG. 3) a device comprising a repeating unit (first coplanar transmission line and a second coplanar transmission line) 202, which is comprised of a  $T_{SEG}$  transmission line segment, and diode  $RTD_{BIG}$ . In column 8, lines 4-42, Geis discloses that such a device having this configuration will not have the voltage level of the logic signal deteriorated by radiation, distortion or any dispersive effects of parasitic capacitances or inductances, and will also exhibit a certain level of noise immunity. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have a first coplanar transmission line, a second coplanar transmission line, and a diode in order to not have the voltage level of the logic signal deteriorated by radiation, distortion or any dispersive effects of parasitic capacitances or inductances, and also exhibit a certain level of noise immunity

*Allowable Subject Matter*

11. Claims 14 thru 16 are allowed. The following is a statement of reasons for the indication of allowable subject matter: The references of record, either singularly or in combination, do not teach or suggest at least a semiconductor switch, comprising: a first i-AlGaAs layer; an i-InGaAs layer formed on said i-AlGaAs layer; a n-AlGaAs layer formed on said i-InGaAs layer; a first anode electrode; a second anode electrode; an n<sup>+</sup> GaAs layer formed between said first and second anodes on said n-AlGaAs layer; and a cathode electrode formed on said n<sup>+</sup> GaAs layer.

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**INFORMATION ON HOW TO CONTACT THE USPTO**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eugene Lee whose telephone number is 571-272-1733. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on 571-272-1664. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Eugene Lee  
October 24, 2005

A handwritten signature in black ink, appearing to be 'E. Lee', with a stylized, flowing script.